

Sustainability: Planning's Role

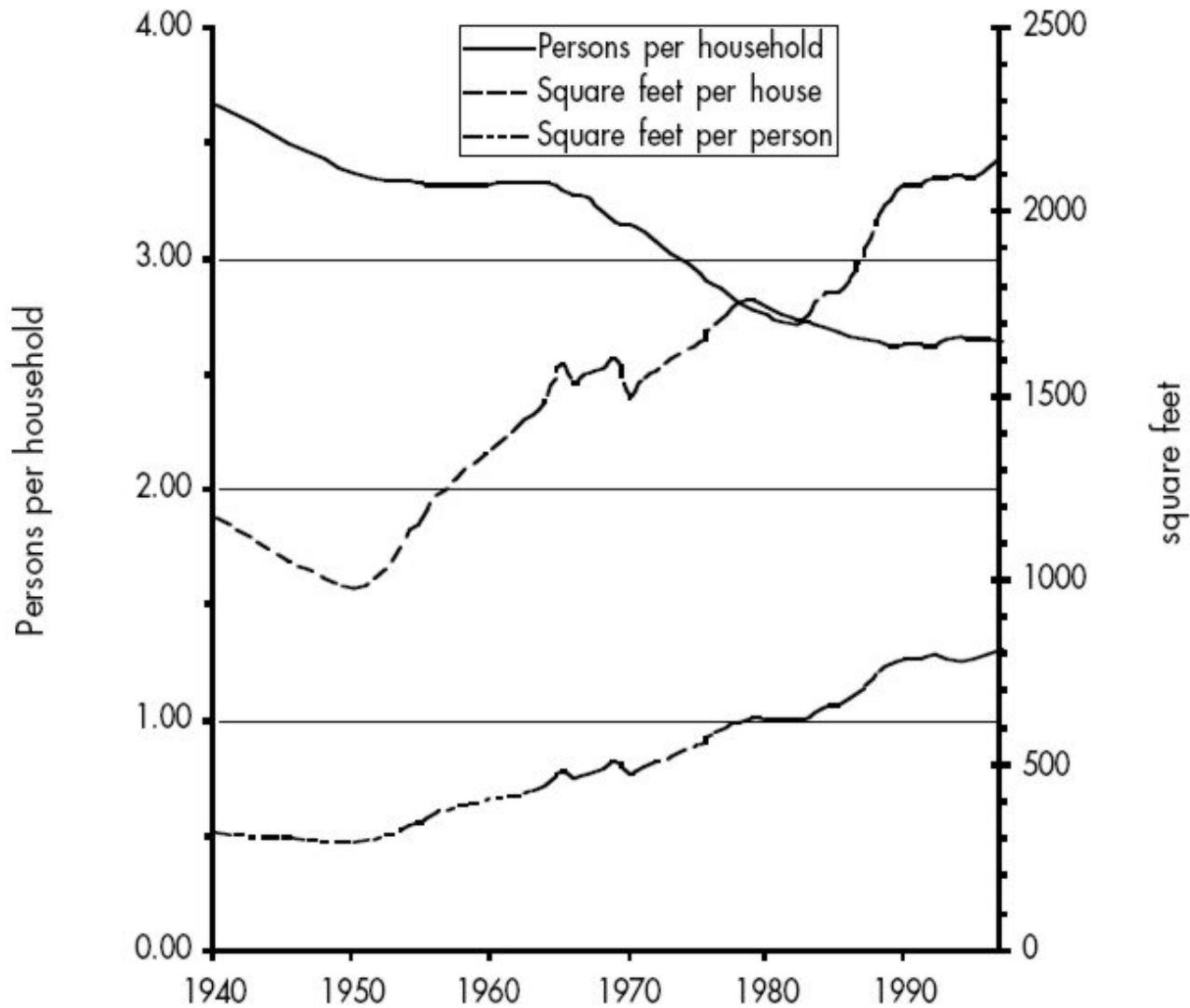
8.7



Royal Caribbean, Springfield: LEED-Gold



Our plan all along was to build a LEED-certified building.
Chris Monnette, Royal Caribbean

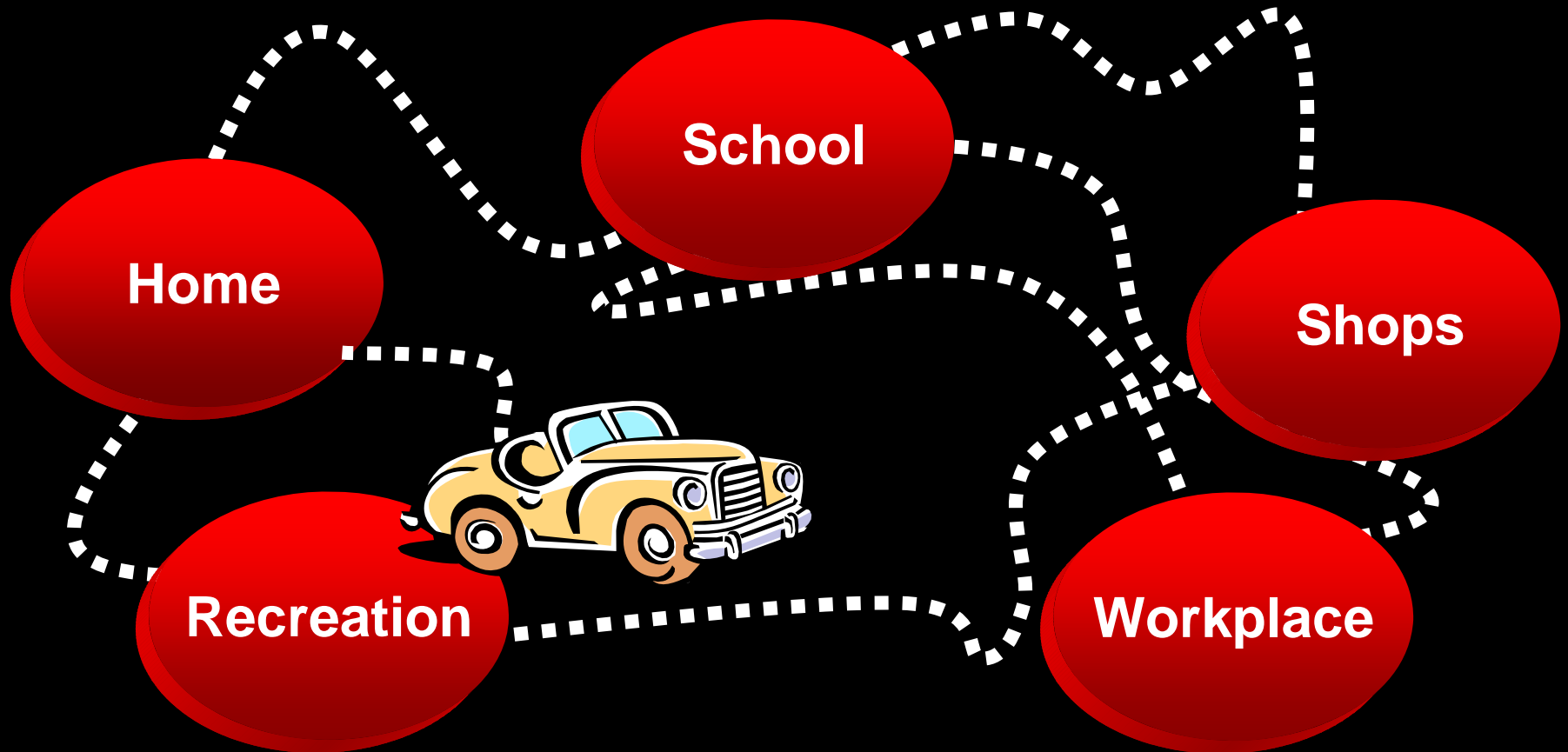




After we drive to the grocery store, I'll drop you off at soccer practice, stop by the post office, then pick up your brother at school. We'll all go to the mall and afterwards meet your father at McDonalds for dinner.

Radio spot for a new development in Colorado

Everything is a Drive Away



Adapted from presentation developed by Smart Growth America

Everything is a Drive Away

Suburban mothers spend
17 full days a year
behind the wheel, more than the
average parent spends dressing,
bathing and feeding a child

Source: Surface Transportation Policy Project

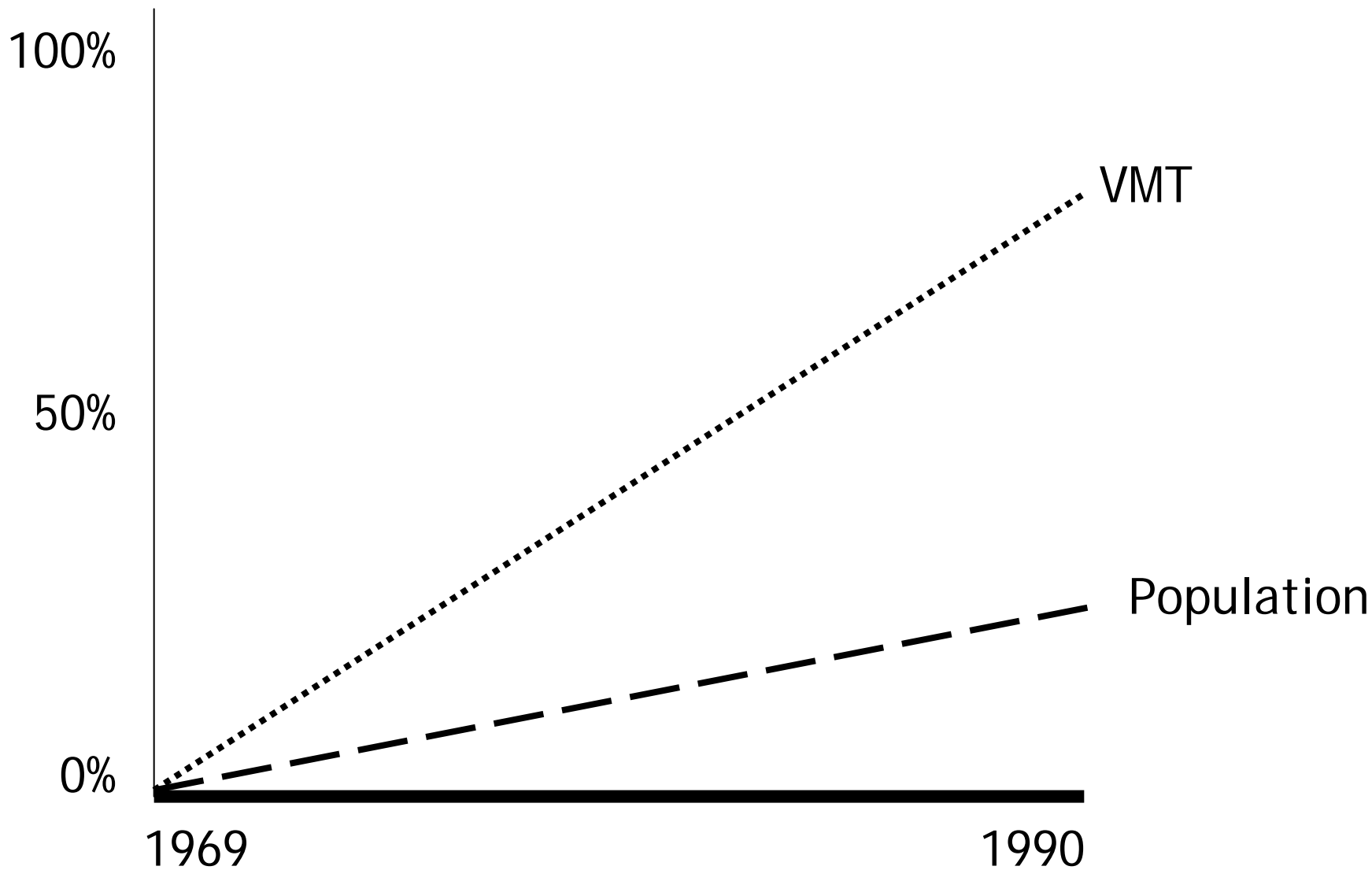
Home

Recreation



Workplace

Adapted from presentation developed by Smart Growth America





Driving a car is probably a typical citizen's most polluting daily activity.

EPA



YOUR CONTRIBUTION (12,000 miles/year at 25 MPG @ 19.4LB CO₂|G)

carbon monoxide 111 pounds/yr.

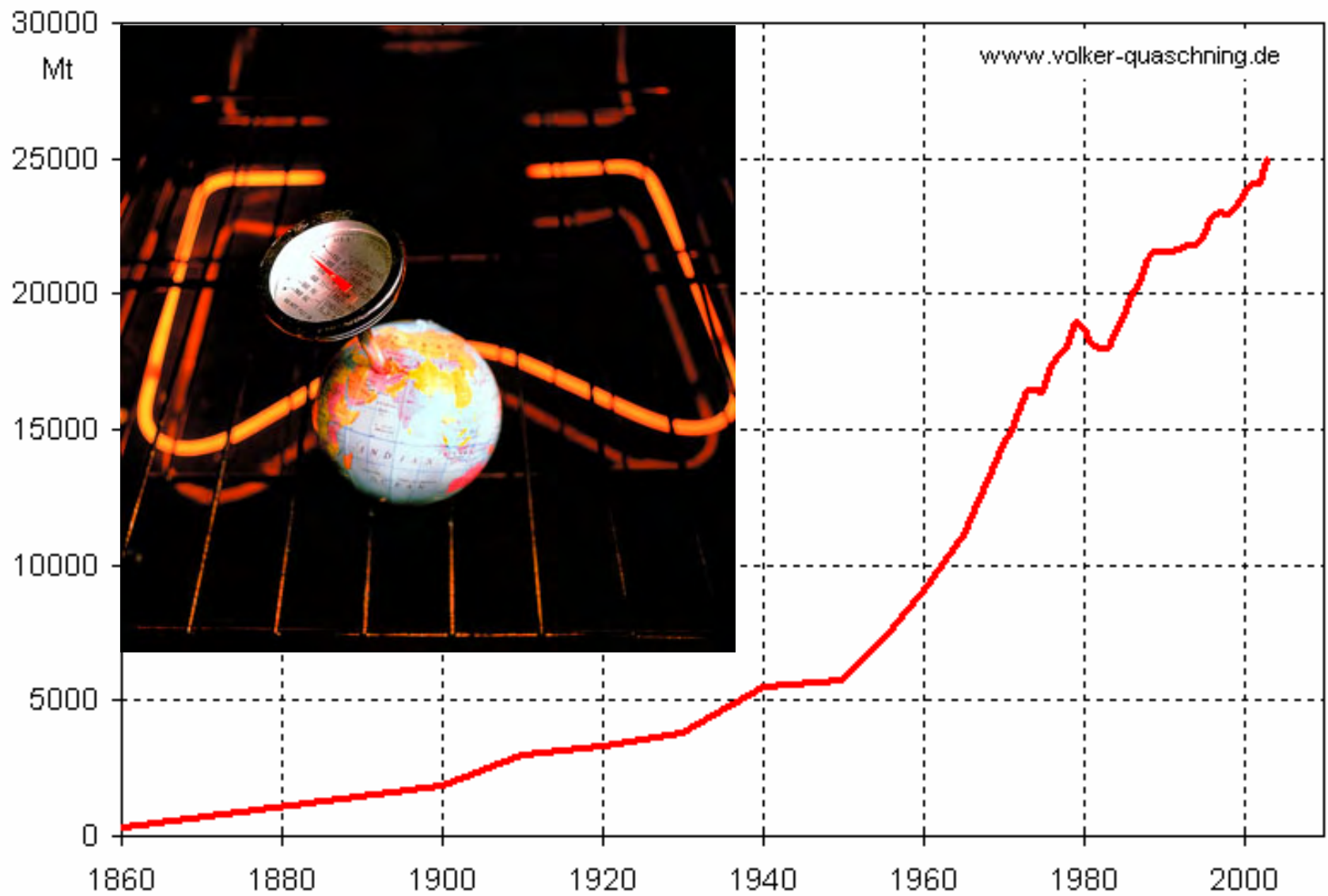
carbon dioxide 9,312 pounds/yr.

hydrocarbons 14 pounds/yr.

nitrogen dioxide 22 pounds/yr.

Driving a car is probably a typical citizen's most polluting daily activity.

EPA



area for a pedestrian (4sf)



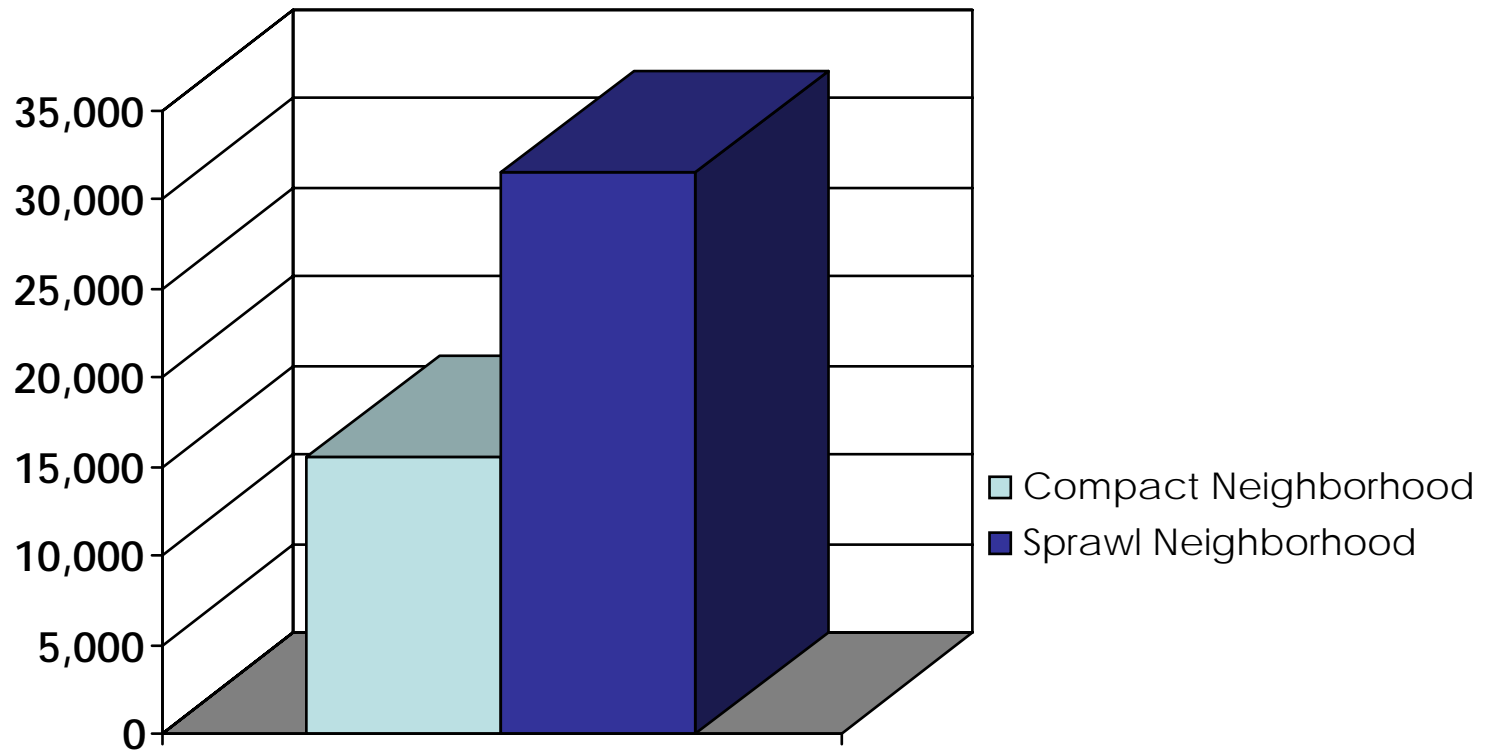
area for a car (1400sf)



*The Army Strategy for the
Environment: Sustain the Mission
– Secure the Future*

We must become
systems thinkers if we
are to benefit from the
interrelationships of the
triple bottom line of
sustainability: mission,
environment, and
community.





Smart Growth Cost Savings

Roads	25% less
Utilities	15% less
Schools	5% less

Source: *Economic and Fiscal Impacts of Alternative Land Use Patterns*, by Robert Burchell,
Rutgers University



LEED-NC

Green Building Rating System
For New Construction &
Major Renovations

Version 2.2

For Public Use and Display

October 2005

LEED for New Construction Version 2.2
October 2005

1



LEED-ND

LEED for Neighborhood Developments
Rating System - Preliminary Draft
June 2007



Smart Location & Linkage 30 Possible Points

Prereq 1 **Smart Location**

Prereq 2 **Proximity to Water and Wastewater Infrastructure**

Prereq 3 **Imperiled Species and Ecological Communities**

Prereq 4 **Wetland and Water Body Conservation**

Prereq 5 **Agricultural Land Conservation**

Prereq 6 **Floodplain Avoidance**

Credit 1 **Brownfield Redevelopment** 2

Credit 2 **High Priority Brownfields Redevelopment** 1

Credit 3 **Preferred Locations** 2-10

Credit 4 **Reduced Automobile Dependence** 1-8

Credit 5 **Bicycle Network** 1

Credit 6 **Housing and Jobs Proximity** 3

Credit 7 **School Proximity** 1

Credit 8 **Steep Slope Protection** 1

Credit 9 **Site Design for Habitat or Wetlands Conservation** 1

Credit 10 **Restoration of Habitat or Wetlands** 1

Credit 11 **Conservation Management of Habitat or Wetlands** 1

Smart Location & Linkage

SLL Prerequisite 1: Smart Location

Encourage development within and near existing communities or public transportation infrastructure. Reduce vehicle trips and miles traveled and support walking as a transportation choice.

Requirements

OPTION 1

Locate the **project** on an **infill site**.

OPTION 2

Locate the project near existing or planned **adequate transit service** so that at least 50% of dwelling units and business entrances within the project are within 1/4 mile **walk distance** of bus or streetcar stops.

OPTION 3

Locate the project near existing neighborhood shops, services, and facilities so that the **project boundary** is within 1/4 mile walk distance of at least four, or within 1/2 mile walk distance of at least 6, of the **diverse uses** defined in Appendix A.

Smart Location & Linkage

SLL Credit 6: Housing and Jobs Proximity

3 Points

Encourage balanced communities with a diversity of uses and employment opportunities. Reduce energy consumption and pollution from motor vehicles by providing opportunities for shorter vehicle trips and/or use of alternative modes of transportation.

OPTION 1

Include a residential component equaling at least 25% of the project's total building square footage, and locate and/or design the project such that the center is within a 1/2 mile **walk distance** of a number of **pre-project** jobs equal to or greater than 50% of the number of dwelling units in the project;

OPTION 2

Include a non-residential component equaling at least 25% of the project's total building square footage, and locate on an **infill** site whose center is within a 1/2 mile walk distance of an existing and operational rail transit stop, and within a 1/2 mile walk distance of a number of existing dwelling units equal to or greater than 50% of the number of new jobs created as part of the project.







Neighborhood Pattern & Design 39 Possible Points

Prereq 1 Open Community

Prereq 2 Compact Development

Credit 1 Compact Development 1-7

Credit 2 Diversity of Uses 1-4

Credit 3 Diversity of Housing Types 1-3

Credit 4 Affordable Rental Housing 1-2

Credit 5 Affordable For-Sale Housing 1-2

Credit 6 Reduced Parking Footprint 2

Credit 7 Walkable Streets 4-8

Credit 8 Street Network 1-2

Credit 9 Transit Facilities 1

Credit 10 Transportation Demand Management 2

Credit 11 Access to Surrounding Vicinity 1

Credit 12 Access to Public Spaces 1

Credit 13 Access to Active Public Spaces 1

Credit 14 Universal Accessibility 1

Credit 15 Community Outreach and Involvement 1

Credit 16 Local Food Production 1

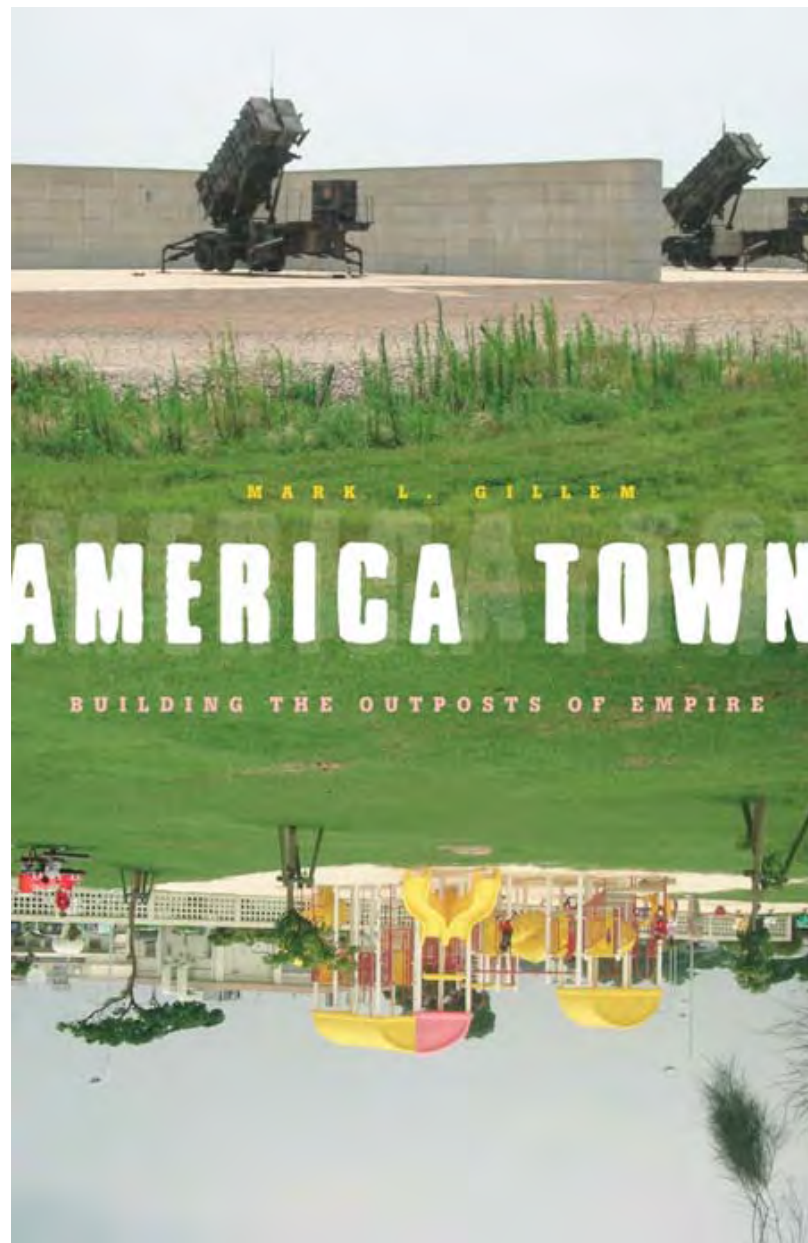
Neighborhood Pattern & Design

NPD Prerequisite 2: Compact Development

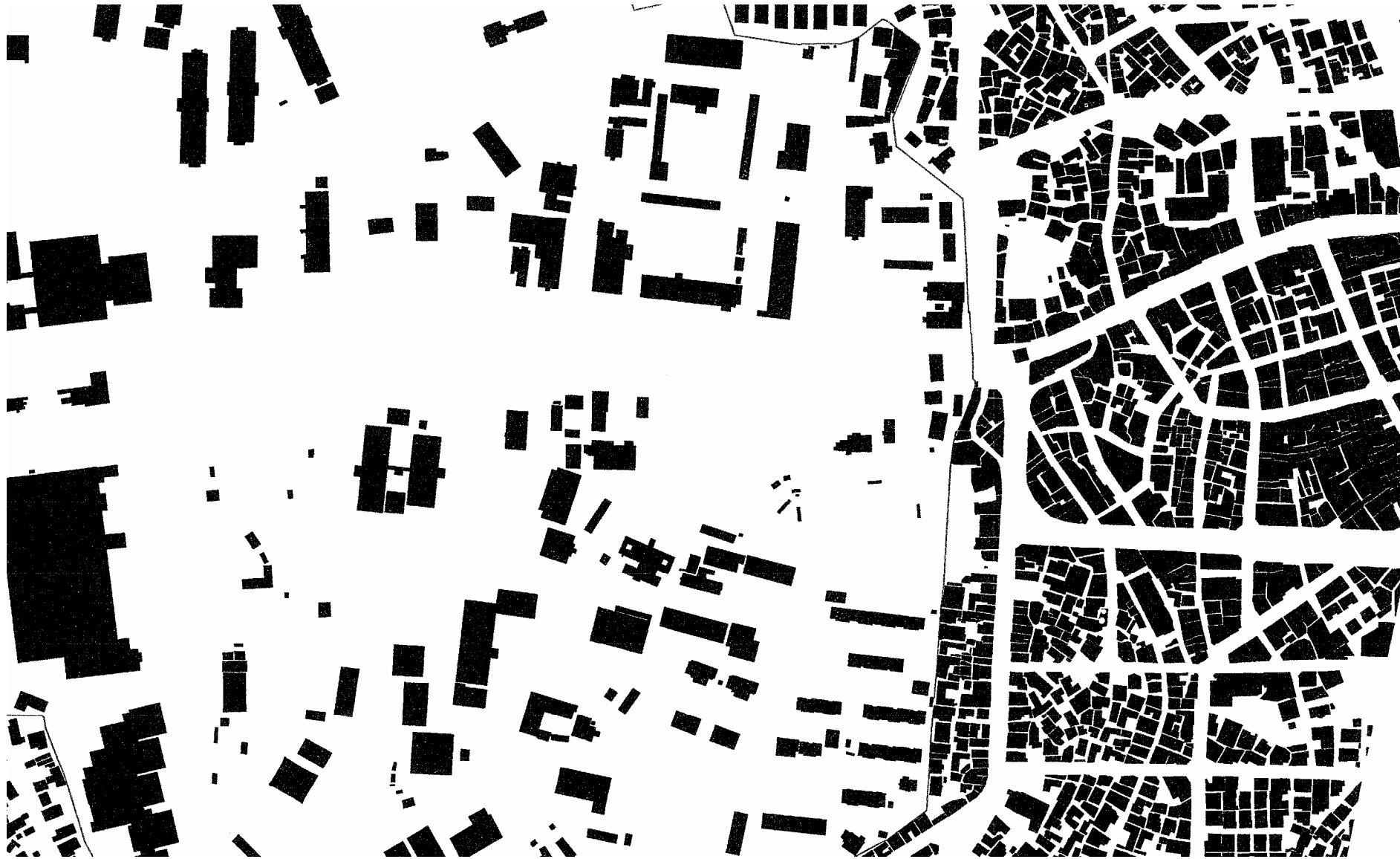
Conserve land. Promote livability, transportation efficiency, and walkability.

Build any residential components of the **project** at an average **density** of seven or more dwelling units per acre of **buildable land** available for residential uses;

Build any non-residential components of the project at an average density of 0.50 **FAR** or greater per acre of buildable land available for non-residential uses.



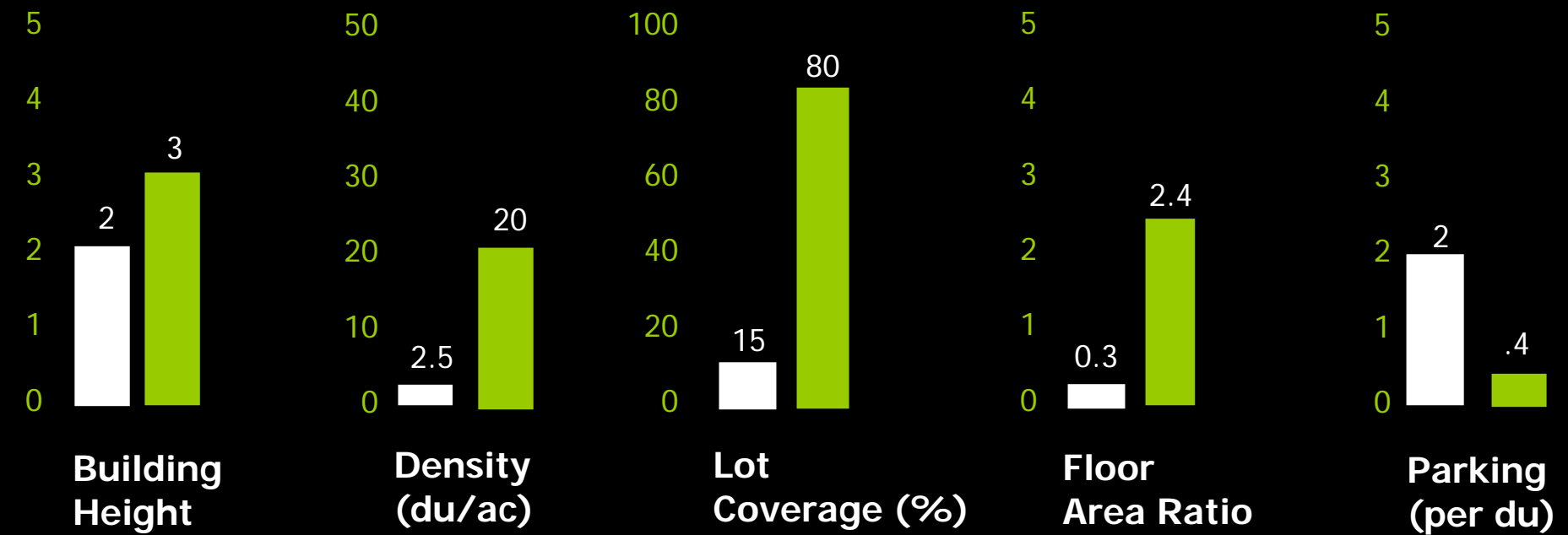




Measuring Suburbia: Okinawa



on-base off-base









Suburbia may be paved with good intentions, but mainly it is paved.


Douglas Kelbaugh
86a: 34a [40%]

0 100m



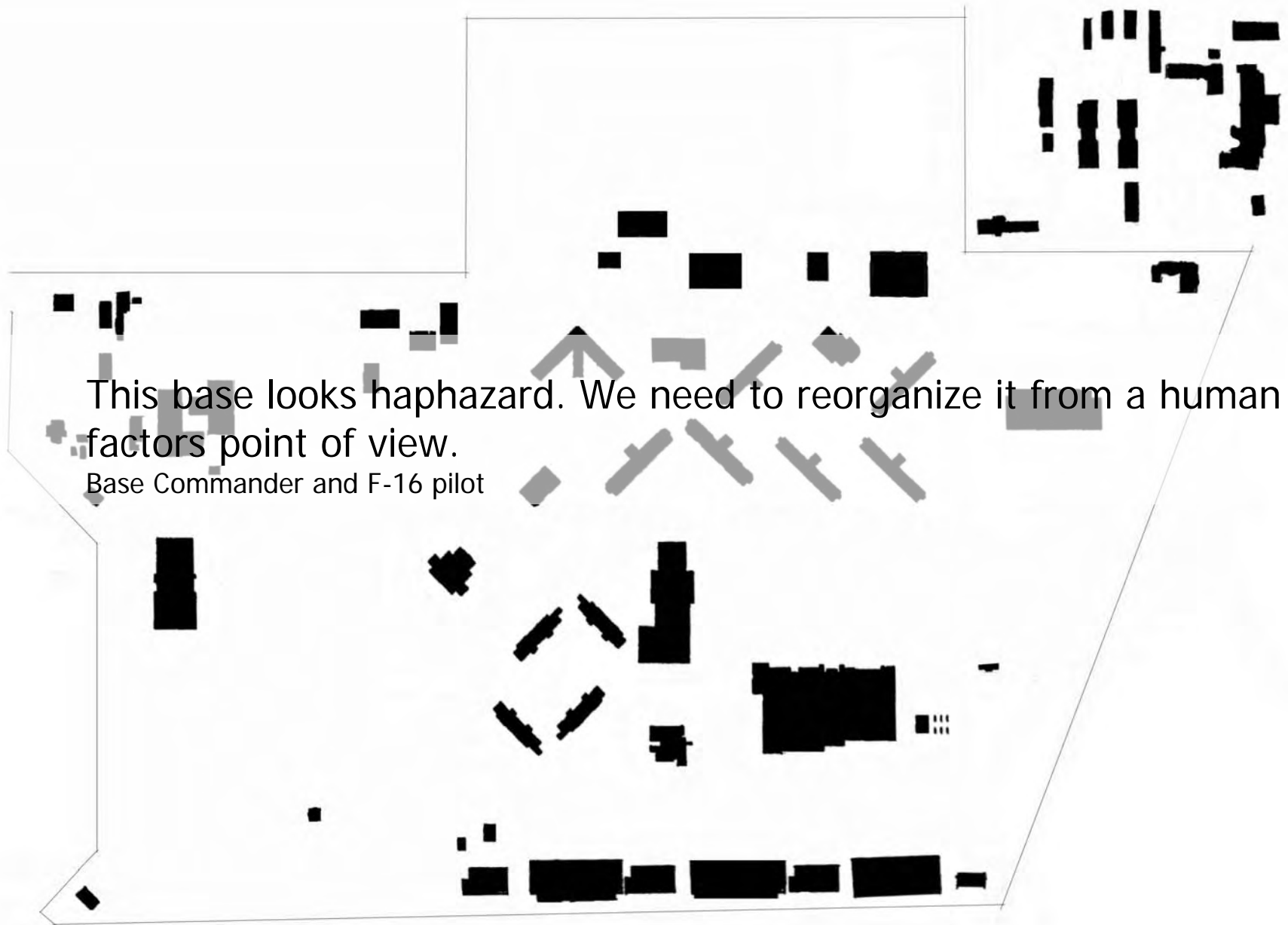
Just look at any base and you'll see the same land use pattern.
Air Force Planner





Our lawns exist to unite us across...unimaginable geographic variety.

Michael Pollan



Neighborhood Pattern & Design

NPD Credit 2: Diversity of Uses

1 to 4 Points

Promote community livability, transportation efficiency, and walkability.

Include a residential component in the **project** that constitutes at least 25% of the project's total building square footage; and design or locate the project such that at least 50% of the dwelling units are within 1/2 mile **walk distance** of at least two (1 point), four (2 points), seven (3 points) or ten (4 points) of the **diverse uses** defined in Appendix A. Uses may either be in nearby areas or be built within the development.

Verify that a pedestrian can reach the uses via routes that do not necessitate crossing any streets that have speed limits of greater than 25 miles per hour, unless those crossings have vehicle traffic controls such as signals and stop signs with crosswalks



Urban Advantage



Urban Advantage



Urban Advantage



Urban Advantage

Neighborhood Pattern & Design

NPD Credit 7: Walkable Streets

4 to 8 Points

Provide appealing and comfortable pedestrian street environments in order to promote pedestrian activity. Promote public health through increased physical activity.

Design and build the **project** such that all of the following are achieved (4 points):

- A principal **functional entry** of each building has a front façade that faces a public space such as a street, square, park, paseo, or plaza.
- A minimum of 30% of all street frontages located *within* the project, if any, are planned for development that complies with the minimum building-height-to-street-width proportions of 1:3; and where building sites are planned along streets *bordering* the project, a minimum of 15% of the total street frontage of such sites contains (or is dedicated to) development that will produce a building-height-to-street-width proportion of 1:3. Street frontages are to be measured in linear feet.
- Continuous sidewalks or equivalent provisions for walking are provided along both sides of all streets within the **project**. New sidewalks must be at least 4 feet wide. Equivalent provisions for walking include *woonerfs* and footpaths.

All streets along exclusively residential blocks within the **project**, whether new or existing, are designed for a maximum speed of 20 mph.

If the above measures are achieved, the project may earn additional points as follows: 1 point for designing and building the project such that any three measures on the list below are accomplished (up to 4 additional points):

f. The front façades of at least 80% of all buildings are no more than 25 feet from front property line.

g. The front facades of at least 50% of all buildings are no more than 18 feet from the front property line.

h. The front facades of at least 50% of mixed-use and non-residential buildings are contiguous to the sidewalk.

i. Functional building entries occur every 75 feet, on average, along non-residential or mixed use blocks.

j. All ground-level non-residential interior spaces that face a public space have transparent glass on at least 33% of the ground-level façade.

k. No blank (without doors or windows) walls longer than 50 feet occur along sidewalks. Walls with public art installations such as murals may be exempted.

l. Any ground-level storefront windows must be kept open and visible (unshuttered) at night, and this must be stipulated to future owners in CC&Rs or other binding documents.

m. On-street parking is provided on 70% of both sides of all new streets. The percentage of on-street parking shall be measured by comparing the length of street designated for parking to the total length of the curb around the perimeter of each block, including curb cuts, driveways, and intersection radii.

n. Street trees occur between the vehicle travel way and sidewalk at intervals of no greater than 40 feet;

o. At least 50% of ground-floor dwelling units have an elevated finished floor no less than 24 inches above the sidewalk grade.

p. In non-residential or mixed use projects, 50% or more of the total number of office buildings include ground floor retail; and all businesses and/or other community services on the ground floor are accessible directly from sidewalks along a public space such as a street, square, or plaza.

q. Trees or other structures provide shade within five years of project occupancy over at least half the length of sidewalks included within or contiguous to the project. The estimated crown diameter is used to calculate the shaded area.



Urban Advantage



Urban Advantage



Urban Advantage

Neighborhood Pattern & Design

NPD Credit 12: Access to Public Spaces

1 Point

To provide a variety of open spaces close to work and home to encourage walking, physical activity and time spent outdoors.

Locate and/or design **project** so that a park, green plaza or square at least 1/6 acre in area, and at least 150' in width, lies within 1/6 mile **walk distance** of the 90% of the dwelling units and business entrances in the project. Parks less than 1 acre must also have a proportion no narrower than 1 unit of width to 4 units of length;

For projects larger than 7 acres only, locate and/or design the project so that taken together all of the parks in the project shall average at least 1/2 acre in size.



Urban Advantage



Urban Advantage



Urban Advantage



Urban Advantage

Green Construction & Technology 31 Possible Points

Prereq 1 Construction Activity Pollution Prevention

Credit 1 Certified Green Buildings 1-3

Credit 2 Energy Efficiency in Buildings 1-3

Credit 3 Reduced Water Use 1-3

Credit 4 Building Reuse and Adaptive Reuse 1-2

Credit 5 Reuse of Historic Buildings 1

Credit 6 Minimize Site Disturbance through Site Design 1

Credit 7 Minimize Site Disturbance during Construction 1

Credit 8 Contaminant Reduction in Brownfields Remediation 1

Credit 9 Stormwater Management 1-5

Credit 10 Heat Island Reduction 1

Credit 11 Solar Orientation 1

Credit 12 On-Site Energy Generation 1

Credit 13 On-Site Renewable Energy Sources 1

Credit 14 District Heating and Cooling 1

Credit 15 Infrastructure Energy Efficiency 1

Credit 16 Wastewater Management 1

Credit 17 Recycled Content in Infrastructure 1

Credit 18 Construction Waste Management 1

Credit 19 Comprehensive Waste Management 1

Credit 20 Light Pollution Reduction 1

Innovation & Design Process 6 Possible Points

Credit 1 Innovation in Design 1-5

Credit 2 LEED Accredited Professional 1

Project Totals 106 Possible Points

Certification Levels:

Certified 40-49 points

Silver 50-59 points

Gold 60-79 points

Platinum 80-106 points

